

ABBREVIATIONS

AF - ABOVE FINISHED FLOOR
B.O.D. - BOTTOM OF DUCT
CFM OR $\frac{1}{2}$ - CUBIC FEET PER MINUTE
CLD - CEILING
CP - CONTROL PANEL
COND. - CONDENSATE
DIA. - DIAMETER
DUPR - DAMPER
EF-1 - EXHAUST FAN (1)
ELEV. - ELEVATION
ER - EXHAUST REGISTER
E.S.P. - EXTERNAL STATIC PRESSURE
F.C. - FLEXIBLE CONNECTION
FD/AD - FIRE DAMPER WITH ACCESS DOOR
FSD-1 - FIRE SMOKE DAMPER (1)
FSR - FIRE/SMOKE RELAY
G.O. - GRAVITY DAMPER
M.E.R. - MECHANICAL EQUIPMENT ROOM
N.C. - NORMALLY CLOSED
N.O. - NORMALLY OPEN
NTS - NOT TO SCALE
R.A. - RETURN AIR
SPEC. - SPECIFICATION
SQ. - SQUARE
TF - TRANSFER FAN
T# - THERMOSTAT NUMBER
WVS - WIRE MESH SCREEN

LEGEND

☒ SUPPLY AIR DUCT
☒ RETURN AIR DUCT
- - - DROP IN DUCT ELEVATION
⊙ SPRINKLER HEAD
+ VOLUME DAMPER
--- NEW DUCT, PIPE OR EQUIPMENT UNLESS OTHERWISE SHOWN
--- EXISTING DUCT OR PIPE, UNLESS OTHERWISE SHOWN
--- EXISTING PIPING TO BE REMOVED
Ⓜ ALARM HORN
Ⓛ DUCT MOUNTED SMOKE DETECTOR
Ⓛ SMOKE DETECTOR IN BATTERY ROOM
Ⓛ SMOKE DETECTOR IN RADIO EQUIPMENT ROOM
Ⓛ THERMOSTAT NUMBER
Ⓜ MOTOR

SEQUENCE OF OPERATION

1. NORMAL OPERATION
EF-1 SHALL RUN CONTINUOUSLY TO MAINTAIN A NEGATIVE PRESSURE IN THE BATTERY ROOM. A DUCT MOUNTED AIR FLOW SWITCH UPON ACTIVATION (LOSS OF AIRFLOW), SHALL ACTIVATE A LOCAL HORN OUTSIDE THE BATTERY ROOM.
THE FAN IN THE AC UNIT SHALL RUN CONTINUOUSLY. A DUCT MOUNTED AIR FLOW SWITCH UPON ACTIVATION (LOSS OF AIRFLOW) SHALL ACTIVATE A LOCAL HORN OUTSIDE THE RADIO EQUIPMENT ROOM.
THE COOLING COIL OF THE AC UNIT SHALL BE CONTROLLED BY THERMOSTAT T1 (LOCATED IN THE RADIO EQUIPMENT ROOM) TO MAINTAIN THE ROOM TEMPERATURE SETTING.
AS DESCRIBED ABOVE, AND:
IF THE TEMPERATURE IN THE RADIO EQUIPMENT ROOM EXCEEDS THE DESIRED MAXIMUM OF 75°F (ADJUSTABLE), THEN THERMOSTAT T1 SHALL ACTIVATE THE TRANSFER FAN TF-1 TO RUN, THUS MOVING AIR FROM THE MECHANICAL EQUIPMENT ROOM, THROUGH THE RADIO EQUIPMENT ROOM, INTO THE PLENUM.
SIMILARLY, IF THE TEMPERATURE IN THE BATTERY ROOM EXCEEDS THE DESIRED MAXIMUM OF 75°F (ADJUSTABLE), THEN THERMOSTAT T2 SHALL ACTIVATE THE EXHAUST FAN EF-2 TO RUN, THUS MOVING AIR FROM THE MECHANICAL EQUIPMENT ROOM, THROUGH THE BATTERY ROOM AND OUT OF THE BUILDING THROUGH ROOF.
2. SMOKE CONDITIONS
IF ANY OF THE THREE SMOKE DETECTORS (CEILING MOUNTED DETECTORS "SR" IN THE RADIO EQUIPMENT ROOM, "SR" IN THE BATTERY ROOM, OR THE AC UNIT'S SUPPLY AIR DUCT DETECTOR "D") SENSE SMOKE, THEN ALL FOUR FAN SHUTDOWN RELAYS FSR SHALL OPEN, THUS CUTTING POWER TO THE AC UNIT AND ALL FANS, AND CLOSING ALL MOTOR OPERATED DAMPERS (FIRE SMOKE DAMPERS) BETWEEN ROOMS (SEE "FIRE ALARM SYSTEM RISER DIAGRAM" ON DRAWING E-811).
AN ALARM SIGNAL SHALL BE SENT THROUGH THE BUILDING'S FIRE ALARM SYSTEM, AND THREE LOCAL STROBE LIGHT/ALARM SPEAKERS SHALL BE ACTIVATED.
IF CEILING MOUNTED DETECTOR "SR" IN THE RADIO EQUIPMENT ROOM OR THE AC UNIT'S SUPPLY AIR DUCT DETECTOR "D" SENSE SMOKE, THEN REMOTE ALARM INDICATOR "R" OR "D" RESPECTIVELY SHALL BECOME ENERGIZED.
IF CEILING MOUNTED DETECTOR "SR" IN THE BATTERY ROOM SENSES SMOKE, THEN REMOTE ALARM INDICATOR "B" SHALL BECOME ENERGIZED.
3. RETURN TO NORMAL OPERATION
BEFORE PUTTING AC UNIT BACK TO NORMAL OPERATION, THE FSD-1 TO FSD-5 SHALL BE MANUALLY RESET TO NORMALLY OPEN POSITIONS. AC UNIT SHALL BE MANUALLY RESTARTED (RESET) FROM THE FIRE CONTROL PANEL.

EQUIPMENT NOTES

1. FIRE SMOKE DAMPER (FSD-1, FSD-2, FSD-3, FSD-4, FSD-5), N.O.
FIRE SMOKE DAMPER SHALL BE A COMBINATION FIRE AND SMOKE DAMPER, FOR INSTALLATION IN 2 HOUR WALL, UL RATED FOR LEAKAGE CLASS 8 AND MEET NYC LOCAL CODE.
FRAME AND BLADES: 16 GAUGE GALVANIZED STEEL, 6" WIDE OPPOSED BLADES.
LINKAGE: CONCEALED INSIDE THE JAMB, 1/2" STEEL OPERATING SHAFT EXTENDING 4 1/2" FROM DAMPER SIDE.
SEALS: STAINLESS STEEL SIDE SEAL.
FUSIBLE LINK: 185°F
FINISH: GALVANIZED
OPERATOR: 120 VOLT/1PH/60 HZ, ON/OFF, SPRING RETURN, WITH SPOT AUXILIARY SWITCH
DAMPER SIZE:
24" W X 30" H FSD-1 WITH OPERATOR MOTOR
24" W X 12" H FSD-2 WITH EXPLOSION PROOF OPERATOR
27" W X 27" H FSD-3 WITH OPERATOR MOTOR
27" W X 8" H FSD-4 WITH OPERATOR MOTOR
8" W X 8" H FSD-5 WITH OPERATOR MOTOR
FSD SHALL BE SAFE-AIR MODEL 772 WITH OPERATOR MOTOR OR APPROVED EQUAL.
2. EXHAUST FAN (EF-1, EF-2)
THE FAN SHALL HAVE ANGLE SUPPORTS FASTENED TO THE CASING AND SPRING VIBRATION HANGERS FOR SUSPENSION FROM 3/8" DIA. 800 HANGERS. THE FAN SHALL HAVE AN INTEGRAL THERMAL OVERLOAD PROTECTION, A LOCAL DISCONNECT SWITCH AND A BACKDRIFT DAMPER.
3. TRANSFER FAN (TF-1)
THE FAN SHALL HAVE A BACKDRIFT DAMPER.
4. AIR-CONDITIONING UNIT (AC-1)
THE AC UNIT SHALL BE A SPLIT AIR CONDITIONING UNIT WITH DIRECT EXPANSION COOLING COIL AND AN AIR COOLED CONDENSING UNIT. THE AC UNIT SHALL HAVE THE FOLLOWING:
- WELDED STEEL FRAME
- 16 GAUGE, GALVANIZED OUTER CASING FINISHED IN ALUMINO ENAMEL PAINT
- 2" THICK, 3 P.C.F. DENSITY RGD FIBER BOARD INSULATION
- 20 GAUGE GALVANIZED INNER CASING
- TWO OF 25 X 16, 2" THICK PLEATED TYPE FLAT FILTERS
- FOUR ROW 25 X 28 DX COOLING COIL WITH ALUMINUM FINS AND EXPANSION VALVE
- CENTRIFUGAL AC CURVE DASH BLOWER MOUNTED ON DRILING INSIDE THE CASING WITH VIBRATION ISOLATORS
- SPRING TYPE VIBRATION ISOLATORS
- MIXING BOX WITH 25X32 AND 12X6 DAMPERS
- EVAPORATOR DRAIN PAN SHALL BE STAINLESS STEEL CONSTRUCTION
- 1.5 HP FAN AS DESCRIBED IN AC UNIT SCHEDULE BELOW, WITH STARTER
AC UNIT SHALL BE HORIZONTAL, INDOOR AIR HANDLER WITH ROOF MOUNTED AIR-COOLED CONDENSING UNIT.

GENERAL NOTES

1) IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM ON THIS DOCUMENT IN ANY WAY IF AN ITEM BEARING THE SEAL OF AN ENGINEER IS ALTERED. THE ALTERING ENGINEER SHALL AFFIX HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.
2) REFER TO STRUCTURAL DRAWINGS FOR SEISMIC BRACING AND SUPPORT DETAILS FOR INSTALLATION OF MECHANICAL EQUIPMENT.

AC UNIT SCHEDULE

UNIT #	TOTAL COOLING CAPACITY	SENSIBLE CAPACITY	EVAPORATOR SECTION			COMPRESSOR			POWER	MANUFACTURER AND MODEL	REMARKS		
			CFM	ESP	1/4" TYPE	NUMBER	TYPE	HP					
AC-1	57,600	43,200	2000	0.50"	1.5	BACKWARD CURVED CENTRIFUGAL	1	HIGH EFFICIENCY	5.0	R-22	208/3/60	TEMPERATURE SENSITIVE, MODEL C12-42, APPLIED PRODUCTS CONDENSING UNIT, MODEL AUC-15000-2 OR APPROVED EQUAL	LOW AMBIENT OPERATION

BASED ON 85°F AMBIENT TEMPERATURE AT CONDENSER AND 78°F DB/64°F WB ENTERING AIR TEMPERATURE AT DX COIL

FAN SCHEDULE

FAN #	LOCATION	CFM	TSP	FAN TYPE	HP	RPM	POWER		MANUFACTURER AND MODEL	REMARKS	
							VOLTS	PHASE/HERTZ			
EF-1	BATTERY ROOM	163	1/4"	CENTRIFUGAL DIRECT DRIVEN	1/4	873	115	1	60	CARNES MODEL VMD00L3 OR APPROVED EQUAL	SEE EQUIPMENT NOTE 2
EF-2	BATTERY ROOM	300	3/8"	CENTRIFUGAL DIRECT DRIVEN	1/4	1280	115	1	60	CARNES MODEL VMD00L3 OR APPROVED EQUAL	SEE EQUIPMENT NOTE 2
TF-1	RADIO EQUIPMENT ROOM	3500	1/2"	PROPELLER DIRECT DRIVEN	3/4	1725	208	3	60	CARNES MODEL L300-1802 OR APPROVED EQUAL	SEE EQUIPMENT NOTE 3

AIR FLOW DIAGRAM

STANDBY POWER

5 WORLD TRADE CENTER

COMMUNICATIONS

LEGEND, EQUIPMENT NOTES, ABBREVIATIONS AND SCHEDULES

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S.G. B.M. S.G.
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Date Scale NONE
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